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FIG. 1a

FIG. 1	FIG. 1a FIG. 1b
--------	--------------------

Sequence of the PCV Imp1011-48121 isolate (SEQ ID No. 1)

1 AATTCAACCT TAACCTTTCT TATTCTGTAG TATTCAAAGG GCACAGAGCG
51 GGGGTTTGAG CCCCTCCTG GGGGAAGAAA GTCATTAATA TTGAATCTCA
101 TCATGTCCAC CGCCCAGGAG GCGGTTCTGA CTGTGGTTCG CTTGACAGTA
151 TATCCGAAGG TCGGGGAGAG GCGGGTGTG AAGATGCCAT TTTTCCTTCT
201 CCAGCGGTAA CCGTGCGGG GGTGGACGAG CCAGGGGCGG CGGCGGAGGA
251 TCTGGCCAAG ATGGCTGCGG GGGCGGTGTC TTCTTCTCCG GTAACGCCTC
301 CTTGGATACG TCATATCTGA AAACGAAAGA AGTGCCTGT AAGTATTACC
351 AGCGCACTTC GGCAGCGGCA GCACCTCGGC AGCACCTCAG CAGCAACATG
401 CCGAGCAAGA AGAATGGAAG AAGCGGACCC CAACCCATA AAAGGTGGGT
451 GTTCACTCTG AATAATCCTT CCGAAGACGA GCGCAAGAAA ATACGGGATC
501 TTCCAATATC CCTATTTGAT TATTTTATTG TTGGCGAGGA GGGTAATGAG
551 GAAGGACGAA CACCTCACCT CCAGGGGTTC GCTAATTTTG TGAAGAAGCA
601 GACTTTTAAT AAAGTGAAGT GGTATTTGGG TGCCCGCTGC CACATCGAGA
651 AAGCGAAAGG AACAGATCAG CAGAATAAAG AATACTGCAG TAAAGAAGGC
701 AACTTACTGA TGGAGTGTGG AGCTCCTAGA TCTCAGGGAC AACGGAGTGA
751 CCTGTCTACT GCTGTGAGTA CCTTGTGGA GAGCGGGAGT CTGGTGACCG
801 TTGCAGAGCA GCACCCTGTA ACGTTTGTCA GAAATTTCCG CGGGCTGGCT
851 GAACTTTTGA AAGTGAGCGG GAAAATGCAG AAGCGTGATT GGAAGACTAA
901 TGTACACGTC ATTGTGGGGC CACCTGGGTG TGGTAAAAGC AAATGGGCTG
951 CTAATTTTGC AGACCCGGAA ACCACATACT GGAAACCACC TAGAAACAAG
1001 TGGTGGGATG GTTACCATGG TGAAGAAGTG GTTGTTATTG ATGACTTTTA
1051 TGGCTGGCTG CCCTGGGATG ATCTACTGAG ACTGTGTGAT CGATATCCAT
1101 TGACTGTAGA GACTAAAGGT GGAAGTGTAC CTTTTTTGGC CCGCAGTATT
1151 CTGATTACCA GCAATCAGAC CCCGTTGGAA TGGTACTCCT CAACTGCTGT
1201 CCCAGCTGTA GAAGCTCTTT ATCGGAGGAT TACTTCCTTG GTATTTTGA

F05120-296460

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FIG. 1b

FIG. 1	FIG. 1a
	FIG. 1b

1251 AGAATGCTAC AGAACAATCC ACGGAGGAAG GGGGCCAGTT CGTCACCCTT
1301 TCCCCCCEAT GCCCTGAATT TCCATATGAA ATAAATTACT GAGTCTTTTT
1351 TATCACTTCG TAATGGTTTT TATTATTCAT TAAGGGTTAA GTGGGGGGTC
1401 TTTAAGATTA AATTCTCTGA ATTGTACATA CATGGTTACA CGGATATTGT
1451 ATTCCTGGTC GTATATACTG TTTTCGAACG CAGTGCCGAG GCCTACGTGG
1501 TCTACATTTT CAGCAGTTTG TAGTCTCAGC CACAGCTGGT TTCTTTTGTT
1551 GTTTGGTTGG AAGTAATCAA TAGTGGAATC TAGGACAGGT TTGGGGGTAA
1601 AGTAGCGGGA GTGGTAGGAG AAGGGCTGGG TTATGGTATG GCGGGAGGAG
1651 TAGTTTACAT AGGGGTCATA GGTGAGGGCT GTGGCCTTTG TTACAAAGTT
1701 ATCATCTAGA ATAACAGCAC TGGAGCCAC TCCCCTGTCA CCCTGGGTGA
1751 TCGGGGAGCA GGGCCAG

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FIG. 2a

FIG. 2	FIG. 2a
	FIG. 2b

Sequence of the PCV Imp1011-48285 isolate (SEQ ID No. 2)

1 AATTCAACCT TAACCTTTCT TATTCTGTAG TATTCAAAGG GCACAGAGCG
51 GGGGTTTGAG CCCCTCCTG GGGGAAGAAA GTCATTAATA TTGAATCTCA
101 TCATGTCCAC CGCCAGGAG GCGGTTTTGA CTGTGGTTCG CTTGACAGTA
151 TATCCGAAGG TCGGGGAGAG GCGGGTGTG AAGATGCCAT TTTTCCTTCT
201 CCAGCGGTAA CCGTGGCGGG GGTGGACGAG CCAGGGGCGG CGGCGGAGGA
251 TCTGGCCAAG ATGGCTGCGG GGGCGGTGTC TTCTTCTCCG GTAACGCCTC
301 CTTGGATACG TCATATCTGA AAACGAAAGA AGTGCCTGT AAGTATTACC
351 AGCGCACTTC GGCAGCGGCA GCACCTCGGC AGCACCTCAG CAGCAACATG
401 CCCAGCAAGA AGAATGGAAG AAGCGGACCC CAACCCATA AAAGGTGGGT
451 GTTCACTCTG AATAATCCTT CCGAAGACGA GCGCAAGAAA ATACGGGATC
501 TTCCAATATC CCTATTTGAT TATTTTATTG TTGGCGAGGA GGGTAATGAG
551 GAAGGACGAA CACCTCACCT CCAGGGGTTT GCTAATTTTG TGAAGAAGCA
601 GACTTTTAAT AAAGTGAAAGT GGTATTTGGG TGCCCGCTGC CACATCGAGA
651 AAGCGAAAGG AACAGATCAG CAGAATAAAG AATACTGCAG TAAAGAAGGC
701 AACTTACTGA TGGAGTGTGG AGCTCCTAgA TCTCagGGAC AACGGAGTGA
751 CCTGTCTACT GCTGTGAGTA CTTGTTGGA GAGCGGGAGT CTGGTGACCG
801 TTGCAGAGCA GCACCCTGTA ACGTTTGTCA GAAATTTCCG CGGGCTGGCT
851 GAACTTTTGA AAGTGAGCGG GAAAATGCAG AAGCGTGATT GGAAGACTAA
901 TGTACACGTC ATTGTGGGGC CACCTGGGTG TGGTAAAAGC AAATGGGCTG
951 CTAATTTTGC AGACCCGGAA ACCACATACT GGAAACCACC TAGAAACAAG
1001 TGGTGGGATG GTTACCATGG TGAAGAAGTG GTTGTTATTG ATGACTTTTA
1051 TGGCTGGCTG CCCTGGGATG ATCTACTGAG ACTGTGTGAT CGATATCCAT
1101 TGAAGTAGA GACTAAAGGT GGAAGTGTAC CTTTTTTGGC CCGCAGTATT
1151 CTGATTACCA GCAATCAGAC CCCGTTGGAA TGGTACTCCT CAACTGCTGT
1201 CCCAGCTGTA GAAGCTCTTT ATCGGAGGAT TACTTCCTTG GTATTTTGGA

FIG. 2a: 29648260

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FIG. 2b

FIG. 2	FIG. 2a
	FIG. 2b

1251 AGAATGCTAC AGAACAATCC ACGGAGGAAG GGGGCCAGTT CGTCACCCTT
1301 TCCCCCCCAT GCCCTGAATT TCCATATGAA ATAAATTACT GAGTCTTTTT
1351 TATCACTTCG TAATGGTTTT TATTATTCAT TAAGGGTTAA GTGGGGGGTC
1401 TTTAAGATTA AATTCTCTGA ATTGTACATA CATGGTTACA CGGATATTGT
1451 ATTCCTGGTC GTATATACTG TTTTCGAACG CAGTGCCGAG GCCTACGTGG
1501 TCTACATTTT CAGTAGTTTG TAGTCTCAGC CACAGCTGAT TTCTTTTGTT
1551 GTTTG GTTGG AAGTAATCAA TAGTGGAATC TAGGACAGGT TTGGGGGTAA
1601 AGTAGCGGGA GTGGTAGGAG AAGGGCTGGG TTATGGTATG GCGGGA_gGAG
1651 TAGTTTACAT AGGGGTCATA GGTGA_gGGCT GTGGCCTTTG TTACAAAGTT
1701 ATCATCTAGA ATAACAGCAC TGGAGCCCAC TCCCCTGTCA CCCTGGGTGA
1751 TCGGGGAGCA GGGCCAG

FIG. 2b

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FIG. 3a

FIG. 3

FIG 3a
FIG. 3b

Sequence of the PCV Imp999 isolate (SEQ ID No. 3)

1 AATTCAACCT TAACCTTTTT TATTCTGTAG TATTCAAAGG GTATAGAGAT
51 TTTGTTGGTC CCCCTCCCG GGGGAACAAA GTCGTCAATA TTAAATCTCA
101 TCATGTCCAC CGCCCAGGAG GCGTTCTGA CTGTGGTAGC CTTGACAGTA
151 TATCCGAAGG TGCGGGAGAG GCGGGTGTG AAGATGCCAT TTTTCCTTCT
201 CCAACGGTAG CGGTGGCGGG GTGGACGAG CCAGGGGCGG CGGCGGAGGA
251 TCTGGCCAAG ATGGCTGCGG GGGCGGTGTC TTCTTCTGCG GTAACGCCTC
301 CTTGGATACG TCATAGCTGA AAACGAAAGA AGTGCCTGT AAGTATTACC
351 AGCGCACTTC GGCAGCGGCA GCACCTCGGC AGCACCTCAG CAGCAACATG
401 CCCAGCAAGA AGAATGGAAG AAGCGGACCC CAACCACATA AAAGGTGGGT
451 GTTCACGCTG AATAATCCTT CCGAAGACGA GCGCAAGAAA ATACGGGAGC
501 TCCCAATCTC CCTATTTGAT TATTTTATTG TTGGCGAGGA GGGTAATGAG
551 GAAGGACGAA CACCTCACCT CCAGGGGTTC GCTAATTTTG TGAAGAAGCA
601 AACTTTTAAT AAAGTGAAGT GGTATTTGGG TGCCCGCTGC CACATCGAGA
651 AAGCCAAAGG AACTGATCAG CAGAATAAAG AATATTGCAG TAAAGAAGGC
701 AACTTACTTA TTGAATGTGG AGCTCCTCGA TCTCAAGGAC AACGGAGTGA
751 CCTGTCTACT GCTGTGAGTA CCTTGTGGA GAGCGGGAGT CTGGTGACCG
801 TTGCAGAGCA GCACCCTGTA ACGTTTGTCA GAAATTTCCG CGGGCTGGCT
851 GAACTTTTGA AAGTGAGCGG GAAAATGCAG AAGCGTGATT GGAAGACCAA
901 TGTACACGTC ATTGTGGGGC CACCTGGGTG TGGTAAAAGC AAATGGGCTG
951 CTAATTTTGC AGACCCGGAA ACCACATACT GGAAACCACC TAGAAACAAG
1001 TGGTGGGATG GTTACCATGG TGAAGAAAGTG GTTGTTATTG ATGACTTTTA
1051 TGGCTGGCTG CCGTGGGATG ATCTACTGAG ACTGTGTGAT CGATATCCAT
1101 TGA CTGATTAGTA GACTAAAGGT GGAAGTGTAC CTTTTTGGC CCGCAGTATT
1151 CTGATTACCA GCAATCAGAC CCCGTTGGAA TGGTACTCCT CAACTGCTGT
1201 CCCAGCTGTA GAAGCTCTCT ATCGGAGGAT TACTTCCTTG GTATTTTGA

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FIG. 3b

FIG. 3

FIG. 3a
FIG. 3b

1251 AGAATGCTAC AGAACAATCC ACGGAGGAAG GGGGCCAGTT CGTCACCCTT
1301 TCCCCCCCAT GCCCTGAATT TCCATATGAA ATAAATTACT GAGTCTTTTT
1351 TATCACTTCG TAATGGTTTT TATTATTCAT TTAGGGTTTA AGTGGGGGGT
1401 CTTTAAGATT AAATTCTCTG AATTGTACAT ACATGGTTAC ACGGATATTG
1451 TAGTCCTGGT CGTATATACT GTTTTCGAAC GCAGTGCCGA GGCCTACGTG
1501 GTCCACATTT CTAGAGGTTT GTAGCCTCAG CCAAAGCTGA TTCCTTTTGT
1551 TATTTGGTTG GAAGTAATCA ATAGTGGAGT CAAGAACAGG TTTGGGTGTG
1601 AAGTAACGGG AGTGGTAGGA GAAGGGTTGG GGGATTGTAT GGCGGGAGGA
1651 GTAGTTTACA TATGGGTCAT AGGTTAGGGC TGTGGCCTTT GTTACAAAGT
1701 TATCATCTAG AATAACAGCA GTGGAGCCCA CTCCCCTATC ACCCTGGGTG
1751 ATGGGGGAGC AGGGCCAG

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FIG. 4a

FIG. 4	FIG. 4a FIG. 4b
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Sequence of the PCV Impl010 isolate (SEQ ID No. 4)

1 AATTCAACCT TAACCTTTCT TATTCTGTAG TATTCAAAGG GTATAGAGAT
51 TTTGTTGGTC CCCCTCCCG GGGGAACAAA GTCGTCAATT TTAAATCTCA
101 TCATGTCCAC CGCCCAGGAG GCGGTTGTGA CTGTGGTACG CTTGACAGTA
151 TATCCGAAGG TGCGGGAGAG GCGGGTGTG AAGATGCCAT TTTTCCTTCT
201 CCAACGGTAG CCGTGGCGGG GGTGGACGAG CCAGGGGCGG CGGCGGAGGA
251 TCTGGCCAAG ATGGCTGCGG GGGCGGTGTC TTCTTCTGCG GTAACGCCTC
301 CTTGGATACG TCATAGCTGA AAACGAAAGA AGTGCCTGT AAGTATTACC
351 AGCGCACTTC GGCAGCGGCA GCACCTCGGC AGCACCTCAG CAGCAACATG
401 CCCAGCAAGA AGAATGGAAG AAGCGGACCC CAACCACATA AAAGGTGGGT
451 GTTCACGCTG AATAATCCTT CCGAAGACGA GCGCAAGAAA ATACGGGAGC
501 TCCCAATCTC CCTATTTGAT TATTTTATTG TTGGCGAGGA GGGTAATGAG
551 GAAGGACGAA CACCTCACCT CCAGGGGTTC GCTAATTTTG TGAAGAAGCA
601 AACTTTTAAT AAAGTGAAGT GGTATTTGGG TGCCCGCTGC CACATCGAGA
651 AAGCCAAAGG AACTGATCAG CAGAATAAAG AATATTGCAG TAAAGAAGGC
701 AACTTACTTA TTGAATGTGG AGCTCCTCGA TCTCAAGGAC AACGGAGTGA
751 CCTGTCTACT GCTGTGAGTA CCTTGTGGA GAGCGGGAGT CTGGTGACCG
801 TTGCAGAGCA GCACCCTGTA ACGTTTGTCA GAAATTTCCG CGGGCTGGCT
851 GAACTTTTGA AAGTGAGCGG GAAAATGCAG AAGCGTGATT GGAAGACCAA
901 TGTACACGTC ATTGTGGGGC CACCTGGGTG TGGTAAAAGC AAATGGGCTG
951 CTAATTTTGC AGACCCGGAA ACCACATACT GGAAACCACC TAGAAACAAG
1001 TGGTGGGATG GTTACCATGG TGAAGAAGTG GTTGTTATTG ATGACTTTTA
1051 TGGCTGGCTG CCGTGGGATG ATCTACTGAG ACTGTGTGAT CGATATCCAT
1101 TGA CTGTAGTA GACTAAAGGT GGA ACTGTAC CTTTTTTGGC CCGCAGTATT
1151 CTGATTACCA GCAATCAGAC CCCGTTGGAA TGGTACTCCT CAACTGCTGT
1201 CCCAGCTGTA GAAGCTCTCT ATCGGAGGAT TACTTCCTTG GTATTTTGGTA

Sequence: 024504

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FIG. 4b

FIG. 4

FIG. 4a
FIG. 4b

1251 AGAATGCTAC AGAACAATCC ACGGAGGAAG GGGGCCAGTT CGTCACCCTT
1301 TCCCCCCCAT GCCCTGAATT TCCATATGAA ATAAATTACT GAGTCTTTTT
1351 TATCACTTCG TAATGGTTTT TATTATTCAT TTAGGGTTTA AGTGGGGGGT
1401 CTTTAAGATT AAATTCTCTG AATTGTACAT ACATGGTTAC ACGGATATTG
1451 TAGTCCTGGT CGTATTTACT GTTTTCGAAC GCAGCGCCGA GGCCTACGTG
1501 GTCCACATTT CCAGAGGTTT GTAGTCTCAG CCAAAGCTGA TTCCTTTTGT
1551 TATTTGGTTG GAAGTAATCA ATAGTGGAGT CAAGAACAGG TTTGGGTGTG
1601 AAGTAACGGG AGTGGTAGGA GAAGGGTTGG GGGATTGTAT GGCGGGAGGA
1651 GTAGTTTACA TATGGGTCAT AGGTTAGGGC TGTGGCCTTT GTTACAAAGT
1701 TATCATCTAG AATAACAGCA GTGGAGCCCA CTCCCCTATC ACCCTGGGTG
1751 ATGGGGGAGC AGGGCCAG

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FIG. 5a

FIG. 5	FIG. 5a
	FIG. 5b
	FIG. 5c
	FIG. 5d

CLUSTAL W multiple sequence alignment

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PCVPK-15      AATTCATATTTAGCCTTTCTAATACGGTAGTATTGGAAAGGTAGGGGTAGGGGGTTGGTG
IMP999-ECO    AATTCAACCTTAACCTTTTTTATTCTGTAGTATTCAAAGGGTATAGAGATTTTGTGGTC
IMP1010-ST    AATTCAACCTTAACCTTTCTTATTCTGTAGTATTCAAAGGGTATAGAGATTTTGTGGTC
IMP1011-48    AATTCAACCTTAACCTTTCTTATTCTGTAGTATTCAAAGGGCACAGAGCGGGGGTTTGAG
IMP1011-48    AATTCAACCTTAACCTTTCTTATTCTGTAGTATTCAAAGGGCACAGAGCGGGGGTTTGAG
*****      *** ***** * * * * ***** * * * * *      **** *

PCVPK-15      CCGCCTGAGGGGGGGAGGAACTGGCCGATGTTGAATTTGAGGTAGTTAACATTCCAAGAT
IMP999-ECO    CCCCCTCCCGGGGGAACAAAGTCGTCAATATTAAATCTCATCATGTCCACCGCCCAGGAG
IMP1010-ST    CCCCCTCCCGGGGGAACAAAGTCGTCAATTTTAAATCTCATCATGTCCACCGCCCAGGAG
IMP1011-48    CCCCCTCCTGGGGGAAGAAAGTCATTAATATTGAATCTCATCATGTCCACCGCCCAGGAG
IMP1011-48    CCCCCTCCTGGGGGAAGAAAGTCATTAATATTGAATCTCATCATGTCCACCGCCCAGGAG
** * * *      * * * * * * * * *      * * * * * * * * *      * * * * *

PCVPK-15      GGC--TGCGAGTATCCTCCTTTT-ATGGTGAGTACAAATTCTGTAGAAAGGCGGGAATTG
IMP999-ECO    GCGGTTCTGACTGTGGTAGCCTTGACAGTATATCCGAAGGTGCGGGAGAGGCGGGTGTG
IMP1010-ST    GCGGTTGTGACTGTGGTAGCCTTGACAGTATATCCGAAGGTGCGGGAGAGGCGGGTGTG
IMP1011-48    GCGGTTCTGACTGTGGTTCGCTTGACAGTATATCCGAAGGTGCGGGAGAGGCGGGTGTG
IMP1011-48    GCGGTTTTGACTGTGGTTCGCTTGACAGTATATCCGAAGGTGCGGGAGAGGCGGGTGTG
*** *      * * * * *      * * * * *      * * * * *      * * * * *

PCVPK-15      AAGATACCCGTCTTTTCGGCGCCATCTGTAACGGTTTCTGAAGGCGGGGTGTGCCAAATAT
IMP999-ECO    AAGATGCCATTTTTCTTTCTCCAACGGTAGCGGTGGC-GGGGGTGGA-CGAGCCAGGGGC
IMP1010-ST    AAGATGCCATTTTTCTTTCTCCAACGGTAGCGGTGGC-GGGGGTGGA-CGAGCCAGGGGC
IMP1011-48    AAGATGCCATTTTTCTTTCTCCAGCGGTAACGGTGGC-GGGGGTGGA-CGAGCCAGGGGC
IMP1011-48    AAGATGCCATTTTTCTTTCTCCAGCGGTAACGGTGGC-GGGGGTGGA-CGAGCCAGGGGC
***** * *      * * * * *      * * * * *      * * * * *      * * * * *

PCVPK-15      GGTCTTCTCCGGAGGATGTTTCCAAGATGGCTGCGGGGGCGGGTCTTCTTCTGCGGTAA
IMP999-ECO    GG----CGGCGGAGGATCTGGCCAAGATGGCTGCGGGGGCGGTGTCTTCTTCTGCGGTAA
IMP1010-ST    GG----CGGCGGAGGATCTGGCCAAGATGGCTGCGGGGGCGGTGTCTTCTTCTGCGGTAA
IMP1011-48    GG----CGGCGGAGGATCTGGCCAAGATGGCTGCGGGGGCGGTGTCTTCTTCTCCGGTAA
IMP1011-48    GG----CGGCGGAGGATCTGGCCAAGATGGCTGCGGGGGCGGTGTCTTCTTCTCCGGTAA
**      *      * * * * * * * * * * * * * * * * * * * * * * *

PCVPK-15      CGCCTCCTTGGCCACGTCATCCTATAAAAGTGAAAGAAGTGCGCTGCTGTAGTATTACCA
IMP999-ECO    CGCCTCCTTGGATACGTCATAGC-TGAAAACGAAAGAAGTGCGCTGTA--AGTATTACCA
IMP1010-ST    CGCCTCCTTGGATACGTCATAGC-TGAAAACGAAAGAAGTGCGCTGTA--AGTATTACCA
IMP1011-48    CGCCTCCTTGGATACGTCATATC-TGAAAACGAAAGAAGTGCGCTGTA--AGTATTACCA
IMP1011-48    CGCCTCCTTGGATACGTCATATC-TGAAAACGAAAGAAGTGCGCTGTA--AGTATTACCA
***** * *      * * * * *      * * * * *      * * * * *      * * * * *

PCVPK-15      GCGCACTTCGGCAGCGGCAGCACCTCGGCAGCG--TCAGTG--AAAATGCCAAGCAAGAA
IMP999-ECO    GCGCACTTCGGCAGCGGCAGCACCTCGGCAGCACCTCAGCAGCAACATGCCAGCAAGAA
IMP1010-ST    GCGCACTTCGGCAGCGGCAGCACCTCGGCAGCACCTCAGCAGCAACATGCCAGCAAGAA
IMP1011-48    GCGCACTTCGGCAGCGGCAGCACCTCGGCAGCACCTCAGCAGCAACATGCCAGCAAGAA
IMP1011-48    GCGCACTTCGGCAGCGGCAGCACCTCGGCAGCACCTCAGCAGCAACATGCCAGCAAGAA
***** * *      * * * * *      * * * * *      * * * * *      * * * * *

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09496:02460

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FIG. 5b

FIG. 5	FIG. 5a
	FIG. 5b
	FIG. 5c
	FIG. 5d

PCVPK-15
IMP999-ECO
IMP1010-ST
IMP1011-48
IMP1011-48

-----AAGCGGCCCGCAACCCCATAGAGGTGGGTGTTACCCCTTAATAATCCTTC
GAATGGAAGAAGCGGACCCCAACCACATAAAAGGTGGGTGTTACGCTGAATAATCCTTC
GAATGGAAGAAGCGGACCCCAACCACATAAAAGGTGGGTGTTACGCTGAATAATCCTTC
GAATGGAAGAAGCGGACCCCAACCCCATAGAGGTGGGTGTTCACTCTGAATAATCCTTC
GAATGGAAGAAGCGGACCCCAACCCCATAGAGGTGGGTGTTCACTCTGAATAATCCTTC

PCVPK-15
IMP999-ECO
IMP1010-ST
IMP1011-48
IMP1011-48

CGAGGAGGAGAAAAACAAATACGGGAGCTTCCAATCTCCCTTTTGTATTATTTGTTTGT
CGAAGACGAGCGCAAGAAAATACGGGAGCTCCAATCTCCCTATTTGATTATTTTATTGT
CGAAGACGAGCGCAAGAAAATACGGGAGCTCCAATCTCCCTATTTGATTATTTTATTGT
CGAAGACGAGCGCAAGAAAATACGGGATCTTCCAATATCCCTATTTGATTATTTTATTGT
CGAAGACGAGCGCAAGAAAATACGGGATCTTCCAATATCCCTATTTGATTATTTTATTGT

PCVPK-15
IMP999-ECO
IMP1010-ST
IMP1011-48
IMP1011-48

CGGAGAGGAAGGTTTGAAGAGGGTAGAACTCCTCACCTCCAGGGGTTTGCGAATTTTGC
TGGCGAGGAGGTAATGAGGAAGGACGAACACCTCACCTCCAGGGGTTTCGCTAATTTTGT
TGGCGAGGAGGTAATGAGGAAGGACGAACACCTCACCTCCAGGGGTTTCGCTAATTTTGT
TGGCGAGGAGGTAATGAGGAAGGACGAACACCTCACCTCCAGGGGTTTCGCTAATTTTGT
TGGCGAGGAGGTAATGAGGAAGGACGAACACCTCACCTCCAGGGGTTTCGCTAATTTTGT
**

PCVPK-15
IMP999-ECO
IMP1010-ST
IMP1011-48
IMP1011-48

TAAGAAGCAGACTTTTAACAAGGTGAAGTGGTATTTTGGTGCCCGCTGCCACATCGAGAA
GAAGAAGCAAACCTTTTAATAAAGTGAAGTGGTATTTGGGTGCCCGCTGCCACATCGAGAA
GAAGAAGCAAACCTTTTAATAAAGTGAAGTGGTATTTGGGTGCCCGCTGCCACATCGAGAA
GAAGAAGCAGACTTTTAATAAAGTGAAGTGGTATTTGGGTGCCCGCTGCCACATCGAGAA
GAAGAAGCAGACTTTTAATAAAGTGAAGTGGTATTTGGGTGCCCGCTGCCACATCGAGAA

PCVPK-15
IMP999-ECO
IMP1010-ST
IMP1011-48
IMP1011-48

AGCGAAAGGAACCGACCAGCAGAATAAAGAATACTGCAGTAAAGAAGGCCACATACTTAT
AGCCAAAGGAACCTGATCAGCAGAATAAAGAATATTGCAGTAAAGAAGGCCAACTTACTTAT
AGCCAAAGGAACCTGATCAGCAGAATAAAGAATATTGCAGTAAAGAAGGCCAACTTACTTAT
AGCGAAAGGAACAGATCAGCAGAATAAAGAATACTGCAGTAAAGAAGGCCAACTTACTGAT
AGCGAAAGGAACAGATCAGCAGAATAAAGAATACTGCAGTAAAGAAGGCCAACTTACTGAT

PCVPK-15
IMP999-ECO
IMP1010-ST
IMP1011-48
IMP1011-48

CGAGTGTGGAGCTCCGCGGAACCGAGGGAAGCGCAGCGACCTGTCTACTGTGTGAGTAC
TGAATGTGGAGCTCCTCGATCTCAAGGACAACGGAGTGACCTGTCTACTGTGTGAGTAC
TGAATGTGGAGCTCCTCGATCTCAAGGACAACGGAGTGACCTGTCTACTGTGTGAGTAC
GGAGTGTGGAGCTCCTAGATCTCAGGGACAACGGAGTGACCTGTCTACTGTGTGAGTAC
GGAGTGTGGAGCTCCTAGATCTCAGGGACAACGGAGTGACCTGTCTACTGTGTGAGTAC
**

PCVPK-15
IMP999-ECO
IMP1010-ST
IMP1011-48
IMP1011-48

CCTTTTGGAGACGGGGTCTTTGGTGACTGTAGCCGAGCAGTTCCTGTAACGTATGTGAG
CTTGTTGGAGAGCGGGAGTCTGGTGACCGTTGCAGAGCAGCACCTGTAACGTTTGTGAG
CTTGTTGGAGAGCGGGAGTCTGGTGACCGTTGCAGAGCAGCACCTGTAACGTTTGTGAG
CTTGTTGGAGAGCGGGAGTCTGGTGACCGTTGCAGAGCAGCACCTGTAACGTTTGTGAG
CTTGTTGGAGAGCGGGAGTCTGGTGACCGTTGCAGAGCAGCACCTGTAACGTTTGTGAG
* * *****

PCVPK-15
IMP999-ECO
IMP1010-ST
IMP1011-48
IMP1011-48

AAATTTCCGCGGGCTGGCTGAACCTTTTGAAGTGAAGCGGGAAGATGCAGCAGCGTGATTG
AAATTTCCGCGGGCTGGCTGAACCTTTTGAAGTGAAGCGGGAAGATGCAGCAGCGTGATTG
AAATTTCCGCGGGCTGGCTGAACCTTTTGAAGTGAAGCGGGAAGATGCAGCAGCGTGATTG
AAATTTCCGCGGGCTGGCTGAACCTTTTGAAGTGAAGCGGGAAGATGCAGCAGCGTGATTG
AAATTTCCGCGGGCTGGCTGAACCTTTTGAAGTGAAGCGGGAAGATGCAGCAGCGTGATTG

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FIG. 5c

FIG. 5	FIG. 5a
	FIG. 5b
	FIG. 5c
	FIG. 5d

PCVPK-15
IMP999-ECO
IMP1010-ST
IMP1011-48
IMP1011-48

GAAGACAGCTGTACACGTCATAGTGGGCCCCGCCCGTTGTGGGAAGAGCCAGTGGGCCCCG
GAAGACCAATGTACACGTCATTGTGGGGCCACCTGGGTGTGGTAAAAGCAAATGGGCTGC
GAAGACCAATGTACACGTCATTGTGGGGCCACCTGGGTGTGGTAAAAGCAAATGGGCTGC
GAAGACTAATGTACACGTCATTGTGGGGCCACCTGGGTGTGGTAAAAGCAAATGGGCTGC
GAAGACTAATGTACACGTCATTGTGGGGCCACCTGGGTGTGGTAAAAGCAAATGGGCTGC

PCVPK-15
IMP999-ECO
IMP1010-ST
IMP1011-48
IMP1011-48

TAATTTTGCTGAGCCTAGGGACACCTACTGGAAGCCTAGTAGAAATAAGTGGTGGGATGG
TAATTTTGCTGAGACCCGGAACACACATACTGGAACACCTAGAAACAAGTGGTGGGATGG
TAATTTTGCTGAGACCCGGAACACACATACTGGAACACCTAGAAACAAGTGGTGGGATGG
TAATTTTGCTGAGACCCGGAACACACATACTGGAACACCTAGAAACAAGTGGTGGGATGG
TAATTTTGCTGAGACCCGGAACACACATACTGGAACACCTAGAAACAAGTGGTGGGATGG

PCVPK-15
IMP999-ECO
IMP1010-ST
IMP1011-48
IMP1011-48

ATATCATGGAGAAGAAGTTGTTGTTTGGATGATTTTATGGCTGGTTACCTTGGGATGA
TTACCATGGTGAAGAAGTGGTTGTTATTGATGACTTTTATGGCTGGCTGCCGTGGGATGA
TTACCATGGTGAAGAAGTGGTTGTTATTGATGACTTTTATGGCTGGCTGCCGTGGGATGA
TTACCATGGTGAAGAAGTGGTTGTTATTGATGACTTTTATGGCTGGCTGCCGTGGGATGA
TTACCATGGTGAAGAAGTGGTTGTTATTGATGACTTTTATGGCTGGCTGCCGTGGGATGA

PCVPK-15
IMP999-ECO
IMP1010-ST
IMP1011-48
IMP1011-48

TCTACTGAGACTGTGTGACCGGTATCCATTGACTGTAGAGACTAAAGGGGGTACTGTTCC
TCTACTGAGACTGTGTGATCGATATCCATTGACTGTAGAGACTAAAGGTGGAACGTGACC
TCTACTGAGACTGTGTGATCGATATCCATTGACTGTAGAGACTAAAGGTGGAACGTGACC
TCTACTGAGACTGTGTGATCGATATCCATTGACTGTAGAGACTAAAGGTGGAACGTGACC
TCTACTGAGACTGTGTGATCGATATCCATTGACTGTAGAGACTAAAGGTGGAACGTGACC

PCVPK-15
IMP999-ECO
IMP1010-ST
IMP1011-48
IMP1011-48

TTTTTTGGCCCCGAGTATTTTGATTACCAGCAATCAGGCCCCCAGGAATGGTACTCCTC
TTTTTTGGCCCCGAGTATTTCTGATTACCAGCAATCAGACCCCGTTGGAATGGTACTCCTC
TTTTTTGGCCCCGAGTATTTCTGATTACCAGCAATCAGACCCCGTTGGAATGGTACTCCTC
TTTTTTGGCCCCGAGTATTTCTGATTACCAGCAATCAGACCCCGTTGGAATGGTACTCCTC
TTTTTTGGCCCCGAGTATTTCTGATTACCAGCAATCAGACCCCGTTGGAATGGTACTCCTC

PCVPK-15
IMP999-ECO
IMP1010-ST
IMP1011-48
IMP1011-48

AACTGCTGTCCCAGCTGTAGAAGCTCTCTATCGGAGGATTACTACTTTGCAATTTTGGAA
AACTGCTGTCCCAGCTGTAGAAGCTCTCTATCGGAGGATTACTTCTTGGTATTTTGGAA
AACTGCTGTCCCAGCTGTAGAAGCTCTCTATCGGAGGATTACTTCTTGGTATTTTGGAA
AACTGCTGTCCCAGCTGTAGAAGCTCTTATCGGAGGATTACTTCTTGGTATTTTGGAA
AACTGCTGTCCCAGCTGTAGAAGCTCTTATCGGAGGATTACTTCTTGGTATTTTGGAA

PCVPK-15
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IMP1011-48
IMP1011-48

GACTGCTGGAGAACAATCCACGGAGGTACCCGAAGGCCGATTTGAAGCAGTGGACCCACC
GAATGCTACAGAACAATCCACGGAGGAA---GGGGGCCAGTTCGTCACCCTTTCCCCCCC
GAATGCTACAGAACAATCCACGGAGGAA---GGGGGCCAGTTCGTCACCCTTTCCCCCCC
GAATGCTACAGAACAATCCACGGAGGAA---GGGGGCCAGTTCGTCACCCTTTCCCCCCC
GAATGCTACAGAACAATCCACGGAGGAA---GGGGGCCAGTTCGTCACCCTTTCCCCCCC

PCVPK-15
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IMP1011-48
IMP1011-48

CTGTGCCCTTTTCCCATATAAAATAAATTACTGAGTCTTTTTTGTATCACATCGTAATG
ATGCCCTGAATTTCCCATATGAAATAAATTACTGAGTCTTTTT---TATCACTTCGTAATG
ATGCCCTGAATTTCCCATATGAAATAAATTACTGAGTCTTTTT---TATCACTTCGTAATG
ATGCCCTGAATTTCCCATATGAAATAAATTACTGAGTCTTTTT---TATCACTTCGTAATG
ATGCCCTGAATTTCCCATATGAAATAAATTACTGAGTCTTTTT---TATCACTTCGTAATG

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FIG. 5d

FIG. 5	FIG. 5a
	FIG. 5b
	FIG. 5c
	FIG. 5d

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IMP1011-48

GTTTTTATT-TTTATTTA---TTTA----GAGGGTCTTTTAGGATAAAATTCCTCTGAATTG
GTTTTTATTATTCAATTTAGGGTTTAAGTGGGGGGTCTTTAAGATTAAATTCCTCTGAATTG
GTTTTTATTATTCAATTTAGGGTTTAAGTGGGGGGTCTTTAAGATTAAATTCCTCTGAATTG
GTTTTTATTATTCAATTAAGGGTT-AAGTGGGGGGTCTTTAAGATTAAATTCCTCTGAATTG
GTTTTTATTATTCAATTAAGGGTT-AAGTGGGGGGTCTTTAAGATTAAATTCCTCTGAATTG
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PCVPK-15
IMP999-ECO
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IMP1011-48
IMP1011-48

TACATAAATAGTCAGCCTTACCACATAATTTTGGGCTGTGGCTGC-ATTTTGGAGCGCAT
TACATACATGGTTACACGGATATTGTAGTCCTGG-TCGTATATACTGTTTTCGAACGCAG
TACATACATGGTTACACGGATATTGTAGTCCTGG-TCGTATATACTGTTTTCGAACGCAG
TACATACATGGTTACACGGATATTGTATTCCCTGG-TCGTATATACTGTTTTCGAACGCAG
TACATACATGGTTACACGGATATTGTATTCCCTGG-TCGTATATACTGTTTTCGAACGCAG
***** ** ** * * * ** * ** * ** * ** *

PCVPK-15
IMP999-ECO
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IMP1011-48
IMP1011-48

AGCCGAGGCCTGTGTGCTCGACATTGGTGTGGGTATTTAAATGGAGCCACAGCTGGTTTC
TGCCGAGGCCTACGTGGTCCACATTTCTAGAGGTTTGTAGCCTCAGCCAAAGCTGATTCC
CGCCGAGGCCTACGTGGTCCACATTTCCAGAGGTTTGTAGTCTCAGCCAAAGCTGATTCC
TGCCGAGGCCTACGTGGTCTACATTTCCAGCAGTTTGTAGTCTCAGCCACAGCTGGTTTC
TGCCGAGGCCTACGTGGTCTACATTTCCAGTAGTTTGTAGTCTCAGCCACAGCTGATTTC
***** ** ** * ***** ** * ** ***** ** *

PCVPK-15
IMP999-ECO
IMP1010-ST
IMP1011-48
IMP1011-48

TTTTATTATTGGGTGGAACCAATCAATTGTTTGGTCCAGCTCAGGTTTGGGGGTGAAGT
TTTTGTTATTGGTTGGAAGTAATCAATAGTGGAGTCAAGAACAGGTTTGGGTGTGAAGT
TTTTGTTATTGGTTGGAAGTAATCAATAGTGGAGTCAAGAACAGGTTTGGGTGTGAAGT
TTTTGTTGTTGGTTGGAAGTAATCAATAGTGGAACTAGGACAGGTTTGGGGGTAAAGT
TTTTGTTGTTGGTTGGAAGTAATCAATAGTGGAACTAGGACAGGTTTGGGGGTAAAGT
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PCVPK-15
IMP999-ECO
IMP1010-ST
IMP1011-48
IMP1011-48

ACCTGGAGTGGTAGGTAAAGGGCTGCCTTATGGTGTGGCGGGAGGAGTAGTTAATATAGG
AACGGGAGTGGTAGGAGAAGGGTTGGGGGATTGTATGGCGGGAGGAGTAGTTTACATATG
AACGGGAGTGGTAGGAGAAGGGTTGGGGGATTGTATGGCGGGAGGAGTAGTTTACATATG
AGCGGGAGTGGTAGGAGAAGGGCTGGGTTATGGTATGGCGGGAGGAGTAGTTTACATAGG
AGCGGGAGTGGTAGGAGAAGGGCTGGGTTATGGTATGGCGGGAGGAGTAGTTTACATAGG
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PCVPK-15
IMP999-ECO
IMP1010-ST
IMP1011-48
IMP1011-48

GGTCATAGGCCAAGTTGGTGGAGGGGGTTACAAAGTTGGCATCCAAGATAACAACAGTGG
GGTCATAGGTTAGGGCTGTGGCCTTTGTTACAAAGTTATCATCTAGAATAACAGCAGTGG
GGTCATAGGTTAGGGCTGTGGCCTTTGTTACAAAGTTATCATCTAGAATAACAGCAGTGG
GGTCATAGGTGAGGGCTGTGGCCTTTGTTACAAAGTTATCATCTAGAATAACAGCACTGG
GGTCATAGGTGAGGGCTGTGGCCTTTGTTACAAAGTTATCATCTAGAATAACAGCACTGG
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PCVPK-15
IMP999-ECO
IMP1010-ST
IMP1011-48
IMP1011-48

ACCCAACACCTCTTTGATTAGAGGTGATGGGGTCTCTGGGGTAA
AGCCCACTCCCCTATCACCTGGGTGATGGGGGAGCAGGGCCAG
AGCCCACTCCCCTATCACCTGGGTGATGGGGGAGCAGGGCCAG
AGCCCACTCCCCTGTCACCTGGGTGATCGGGGAGCAGGGCCAG
AGCCCACTCCCCTGTCACCTGGGTGATCGGGGAGCAGGGCCAG
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